

Notice of Allowability

Application No.

09/310,596

Applicant(s)

LISITSA ET AL.

Examiner

Art Unit

William C. Vaughn, Jr.

2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/2/05.
2. ☒ The allowed claim(s) is/are 1-8, 10-12, 15-42, 57-84, 86-90. Renumbered 1-72.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☒ to Paper No./Mail Date 6.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 3/1/05.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

William C. Vaughn, Jr.
Primary Examiner
Art Unit 2143
William C. Vaughn, Jr.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Richard P. Dodson, Reg. No. 52,824 on 01 March 2005.

IN THE CLAIMS

Please cancel claims 13, 14, and 85 without prejudice or disclaimer.

Please amend claims 1, 11, 21, 33, 57, 69, 80 and 81 as follows:

1. (Currently Amended) A method for processing frames of streaming data through modules in a digital computer, comprising:

constructing a graph as a sequence of the modules for accepting and processing the frames of streaming data to achieve desired output data;

dividing the graph to define a pipe according to performance parameters for each of the modules and the graph as a whole, wherein the pipe is a connected group of multiple ones of the modules, at least one of the modules being a restructuring module and wherein the performance parameters comprise parameters corresponding to operations performed by graph modules;

providing a common memory area accessible to the modules within the pipe for storing streaming data;

constructing a composite frame nesting tree specifying composite frames comprising nested subframes;

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allocating composite frames in the common memory area in accordance with the composite frame nesting tree, wherein the allocating of the composite frame includes a frame control table having an entry for each module in the pipe and a flag for each of the modules indicating whether a particular module has completed an operation upon the subframe; setting of the flags whenever a module has completed an operation upon a subframe;

transporting the streaming data through different ones of the modules in the group in different ones of the subframes; and

restructuring the data among at least some of the subframes in the restructuring module.

11. (Currently Amended) A method for processing frames of streaming data through multiple modules disposed in a pipe in a digital computer, comprising:

constructing a graph as a sequence of the modules for accepting and processing the frames of streaming data to achieve desired output data;

dividing the graph to define the pipe according to performance parameters for each of the modules and the graph as a whole, wherein the pipe is a connected group of multiple ones of the modules, at least one of the modules being a restructuring module and wherein the performance parameters comprise parameters corresponding to operations performed by graph modules;

constructing a composite frame nesting tree specifying a composite frame comprising multiple nested subframes;

allocating a composite frame in accordance with the composite frame nesting tree, wherein the allocating of the composite frame includes a frame control table having an entry for each module in the pipe and a flag for each of the modules indicating whether a particular

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module has completed an operation upon the subframe; setting of the flags whenever a module has completed an operation upon a subframe;

performing operations upon the subframes in any of the modules sourcing data to the restructuring module;

after completion of the operations for all of the subframes sourcing data to the restructuring module, issuing a control transaction to the restructuring module; and

performing operations upon the subframes sources to the restructuring module in response to the control transaction.

21. (Currently Amended) A method for processing frames of streaming data through modules including multiple restructuring modules in a digital computer, comprising:

constructing a graph as a sequence of the modules for accepting and processing the frames of streaming data to achieve desired output data;

dividing the graph to define the pipe according to performance parameters for each of the modules and the graph as a whole, wherein the pipe is a connected group of multiple ones of the modules, at least one of the modules being a restructuring module and wherein the performance parameters comprise parameters corresponding to operations performed by graph modules;

constructing at least one composite frame nesting tree specifying composite frames comprising nested subframes;

assigning a single allocator to one of the modules;

allocating composite frames in accordance with the at least one composite frame nesting tree with respective ones of the restructuring modules, wherein the allocating of the composite

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frames includes a frame control table having an entry for each module in the pipe and a flag for each of the modules indicating whether a particular module has completed an operation upon the subframe; setting of the flags whenever a module has completed an operation upon a subframe;

transporting the streaming data through different ones of the modules in the group in different ones of the subframes; and

restructuring the data among the subframes in the restructuring modules.

33. (Currently Amended) A method for processing frames of streaming data through modules including multiple restructuring modules connected in a pipe in a digital computer, comprising:

constructing a graph as a sequence of the modules for accepting and processing the frames of streaming data to achieve desired output data;

dividing the graph to define the pipe according to performance parameters for each of the modules and the graph as a whole, wherein the pipe is a connected group of multiple ones of the modules and wherein the performance parameters comprise parameters corresponding to operations performed by graph modules;

constructing at least one composite frame nesting tree specifying at least one composite frame comprising multiple nested subframes;

allocating a composite frame in accordance with the at least one composite frame nesting tree for different ones of the restructuring modules, wherein the allocating of the composite frame includes a frame control table having an entry for each module in the pipe and a flag for

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each of the modules indicating whether a particular module has completed an operation upon the subframe; setting of the flags whenever a module has completed an operation upon a subframe;

performing data-sourcing operations upon certain of the subframes in sources ones of the modules;

when each of the data-sourcing operations has completed, determining whether one of the restructuring modules has all of the subframes required for it to perform an operation;

if so, issuing a control transaction to the one restructuring module; and

performing an operation in the one restructuring module after receiving a control transaction.

57. (Currently Amended) A computer system for processing streaming data, comprising:

a plurality of memory managers each configured to, at least:

~~construct~~ constructing at least one composite frame nesting tree specifying composite frames comprising nested subframes for containing streaming data; and

~~allocate~~ allocating composite frames in accordance with the at least one composite frame nesting tree, wherein the allocating of the composite frames includes a frame control table having an entry for each module in the pipe and a flag for each of the modules indicating whether a particular module has completed an operation upon the subframe; setting of the flags whenever a module has completed an operation upon a subframe;

a flow manager for constructing a graph as a sequence of the modules for accepting and processing the streaming data to achieve desired output data, for dividing the graph to define a

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pipe according to performance parameters for each of the modules and the graph as a whole, wherein the pipe is a connected group of multiple ones of the modules, including a plurality of the restructuring modules, and for assigning one of the memory managers to the pipe and wherein the performance parameters comprise parameters corresponding to operations performed by graph modules.

69. (Currently Amended) A computer system for processing streaming data, comprising:

a plurality of modules for processing the streaming data, at least some of the modules being restructuring;

a plurality of memory managers each configured to, at least:

~~construct~~ constructing at least one composite frame nesting tree specifying composite frames comprising nested subframes for containing streaming data; and

~~allocate~~ allocating composite frames in accordance with the at least one composite frame nesting tree, wherein the allocating of the composite frames includes a frame control table having an entry for each module in the pipe and a flag for each of the modules indicating whether a particular module has completed an operation upon the subframe; setting of the flags whenever a module has completed an operation upon a subframe;

a flow manager for constructing a graph as a sequence of the modules for accepting and processing the streaming data to achieve desired output data, for dividing the graph to define a pipe according to performance parameters for each of the modules and the graph as a whole, wherein the pipe is a connected group of multiple ones of the modules, including a plurality of

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the restructuring modules, and for assigning one of the memory managers to the pipe and wherein the performance parameters comprise parameters corresponding to operations performed by graph modules; and

a control manager for issuing control transactions for initiating processing operations in the modules.

80. (Currently Amended) A computer readable medium bearing instructions and data for causing a digital computer to execute a method for processing frames of streaming data through modules in a digital computer, the method comprising:

constructing a graph as a sequence of the modules for accepting and processing the frames of streaming data to achieve desired output data;

dividing the graph to define a pipe according to performance parameters for each of the modules and the graph as a whole, wherein the pipe is a connected group of multiple ones of the modules, at least one of the modules being a restructuring module and wherein the performance parameters comprise parameters corresponding to operations performed by graph modules;

providing a common memory area accessible to the modules within the pipe for storing streaming data;

constructing a composite frame nesting tree specifying composite frames comprising nested subframes;

allocating composite frames in the common memory area in accordance with the composite frame nesting tree, wherein the allocating of the composite frame includes a frame control table having an entry for each module in the pipe and a flag for each of the modules

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indicating whether a particular module has completed an operation upon the subframe; setting of the flags whenever a module has completed an operation upon a subframe;

transporting the streaming data through different ones of the modules in the group in different ones of the subframes; and

restructuring the data among at least some of the subframes in the restructuring module.

81. (Currently Amended) A computer readable medium bearing instructions and data for causing a digital computer to execute a method for processing frames of streaming data through multiple modules disposed in a pipe in a digital computer, the method comprising:

constructing a graph as a sequence of the modules for accepting and processing the frames of streaming data to achieve desired output data;

dividing the graph to define the pipe according to performance parameters for each of the modules and the graph as a whole, wherein the pipe is a connected group of multiple ones of the modules, at least one of the modules being a restructuring module and wherein the performance parameters comprise parameters corresponding to operations performed by graph modules;

constructing a composite frame nesting tree specifying a composite frame comprising multiple nested subframes;

allocating a composite frame in accordance with the composite frame nesting tree, wherein the allocating of the composite frame includes a frame control table having an entry for each module in the pipe and a flag for each of the modules indicating whether a particular module has completed an operation upon the subframe; setting of the flags whenever a module has completed an operation upon a subframe;

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performing operations upon the subframes in any of the modules sourcing data to the restructuring module;

after completion of the operations for all of the subframes sourcing data to the restructuring module, issuing a control transaction to the restructuring module; and

performing operations upon the subframes sources to the restructuring module in response to the control transaction.

Terminal Disclaimer

2. The terminal disclaimer filed on 02 March 2005 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of U.S. Patent No. 6,748,440 has been reviewed and is accepted. The terminal disclaimer has been recorded.

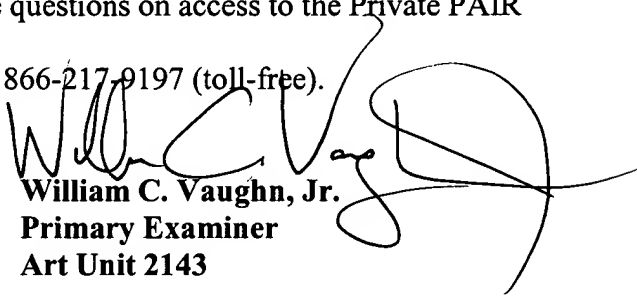
Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Vaughn, Jr. whose telephone number is (571) 272-3922. The examiner can normally be reached on 8:00-6:00, 1st and 2nd Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William C. Vaughn, Jr.
Primary Examiner
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WCV